AMENDMENTS TO THE CLAIMS

1. – 7. (Canceled)

10. (Previously presented) A neural stimulation system comprising an implantable pulse generator, an electrode array having multiple electrodes attached to the pulse generator, a differential amplifier for recording electrically evoked action potentials (ECAP), and control circuitry for controlling operation of the implantable pulse generator so that charge normalization is achieved, wherein the control circuitry includes:

means for recording when an applied stimulus elicits an ECAP to occur;

means for determining the charge associated with the applied stimulus that produced the ECAP; and

means for setting the program levels of the stimuli applied by the implant system during its operation to stimuli having approximately the same charge as the charge that elicited the ECAP.

11. (Previously presented) The neural stimulation system of Claim 10 further including:

means for determining a threshold neural response elicited from application of at least one stimulus having a known amplitude and pulse width to a first electrode of the multiple electrodes;

means for determining the charge associated with the stimulus that produced the threshold neural response at the first electrode where the stimulus was applied; and wherein the means for determining a threshold neural response comprises

means for applying a multiplicity of stimuli, each applied stimuli having a different intensity level associated therewith,

means for measuring a corresponding neural response associated with application of each one of the multiplicity of stimuli,

means for defining a data point for each applied stimulus and its corresponding neural response, thereby defining a multiplicity of data points, and

means for analyzing the multiplicity of data points to determine the threshold neural response.

12. (original) The neural stimulation system of Claim 11 wherein the means for measuring a corresponding neural response associated with application of each one of the multiplicity of stimuli comprises means for measuring a first peak N1 of one polarity of a neural response, and means for measuring a second peak P1 of an opposite polarity of the neural response, and means for determining the measured neural response to be the N1-P1peak-to-peak difference.

13. (original) The neural stimulation system of Claim 11 wherein the means for analyzing the multiplicity of data points to determine the threshold neural response comprises:

means for plotting the multiplicity of data points on a graph, wherein the intensity level of the applied stimulus comprises a first axis of said graph, and the measured neural response associated with the applied stimulus comprises a second axis of said graph;

means for fitting a data line to the multiplicity of data points plotted on the graph;

means for determining an intersection point at which an extrapolation of the data line intersects with the first axis of the graph; and

means for setting the threshold neural response as the intersection point.

14. (original) The neural stimulation system of Claim 13 wherein the means for fitting a data line to the multiplicity of data points comprises means for applying a linear-regression line to the multiplicity of data points.

15. (original) The neural stimulation system of Claim 10 wherein the neural stimulation system comprises an implantable cochlear stimulation system.

16. (original) The neural stimulation system of Claim 10 wherein the neural stimulation system comprises a spinal cord stimulation system.

17. (Previously presented) The method of Claim 1 wherein the fixed pulse width is between 11 µs and 75 µs.

19. – 20. (Canceled)